

REMARKS

Entry of this amendment, and reconsideration and allowance of this application, as amended, is respectfully requested.

This amendment is in response to the Office Action dated June 23, 2003. It is noted that the present amendment is being filed in conjunction with a separate paper entitled "Status of Claims and Support for Claim Changes", filed on even date herewith.

By the present amendment, the title has been amended, as requested, and the specification has been amended to clearly point out that more than one reissue application has been filed for the same patent, with the other application being identified and a statement being made that the present application is a continuation of the other reissue application. As such, it is respectfully submitted that the amendment to the specification is now in proper form, and removal of the objection set forth on pages 2 and 3 of the Office Action is respectfully requested.

With regard to the various objections made to the Declaration, a new Declaration is being forwarded to the Assignee for execution, and will be filed shortly.

Appreciation is expressed for the allowance of claims 1 to 25. By the present amendment, independent claim 26, 39, 52, 66 and 80 have been amended to clarify the invention. These points will be discussed below.

At the outset, reconsideration and removal of the objection to the drawings and the 35 U.S.C. § 112, second paragraph, rejection of claims 29, 34 and 35 is respectfully requested (noting that the objection to the drawings and the 35 U.S.C. § 112 rejection are effectively tied to one another and that it appears that the claims have been miss-numbered in the drawing objection). Regarding this, it is noted that both the objections to the drawings and the rejection of claims 29, 34 and 35 is

based on a statement that the drawings fail to show the features defined in these claims. In response to this, Applicants respectfully submit that, in fact, the subject matter of these claims is found in the drawings and the related description in the specification.

For example, with regard to claim 29, this claim defines that the slit through the substrate is tapered so that an opening on the second surface of the substrate is greater than an opening on the first surface of the substrate. Such an arrangement is clearly shown in Fig. 12 of the drawing in which the opening in the substrate 1 for the slit 5 at the upper first surface of the substrate is smaller than the opening of the slit 5 at the lower second surface of the substrate 1. This is clearly defined in column 14, lines 28 et seq. with the statement:

"The slits 5 are tapered so that its opening on the backside of the base substrate 1 is greater than the opening on the main surface side."

Accordingly, it is respectfully submitted that clear support in the specification exists for the wording of claim 29, and reconsideration and removal of the objection to the drawing and the 35 U.S.C. § 112, second paragraph, rejection of claim 29 is respectfully requested.

With regard to claim 34, this claim defines land portions and conductors formed between the land portions and the electrode path, wherein the width of each of the land portions is larger than a width of each of the conductors, wherein the land portions, the conductors and the electrode pads are integrally formed with one another on the second surface of the substrate and the bump electrodes are disposed on the land portions. Referring to Figs. 2 and 3, the "land portions" can be read as the first electrode pad 1B. The "conductors" can be read on the conductors 1B₁ shown in Figs. 2 and 3. The "electrode pad" can be read on the second

electrode pad 1A shown in these figures. These elements are described in column 7, lines 1-6 of the specification, and clearly have the claimed relationship as shown in Figs. 2 and 3 of the specification. Therefore, removal of the objection to the drawings and the 35 U.S.C. § 112, second paragraph, rejection of claim 34 and its dependent claim 35 is also earnestly solicited.

Reconsideration and removal of the rejection of claims 26-38 under 35 U.S.C. § 101 as claiming the same invention as that of claim 27 of copending application Serial No. 10/105,236 is also respectfully requested. With regard to this, it is noted that claims 26-38 of the present application define a large number of features, far beyond anything defined in claim 27 of the copending application Serial No. 10/105,236. As clearly stated in MPEP 804, in order for a statutory "same invention" rejection under 35 U.S.C. § 101 to apply, virtually identical subject matter and wording must exist between the claims involved. It is generally well accepted that this means that the claim language in question must be virtually identical, or, if different, actually define essentially the same theme (e.g. "one yard" as opposed to "three feet"). Clearly, the language of claims 26-38 is not virtually identical to that of the single claim 27 from the copending application. Therefore, either removal or clarification of this rejection is respectfully requested.

Reconsideration and removal of the rejection of claims 26-29, 32, 33, 37, 38-42, 44, 48-58, 61-69, 71, 72, 75-82 and 84-90 under 35 U.S.C. § 102(e) as being anticipated by Masukawa and the rejection of claims 33, 34, 46, 47, 59, 60, 73 and 74 as being obvious over Masukawa is respectfully requested. In the Office Action, reference is made to Fig. 6B of Masukawa for showing a slit in a substrate with a semiconductor pellet 1 having bonding pad 6A located over the slit. Masukawa also teaches wires 5' connecting to the bonding pads 6 and 6A of the semiconductor

pellet 1. However, an examination of Fig. 6B clearly indicates that the bonding wires 5' pass over the slit, rather than through it. In order to clarify this distinction of the present claims, claim 26 has been amended to specifically define:

"Bonding wires, each extending from one of said bonding pads of said semiconductor pellet to pass through said slit from said first surface of the substrate to the second surface of the substrate."

Similar changes have been made to the claims 39, 52, 66 and 80. As such, this serves to clearly distinguish the claimed invention from the arrangement of Masukawa. Regarding this, the present claim language defines structures such as shown in Figs. 2, 3, 7, etc. of the various embodiments of the present invention in which the bonding wires 6 pass from one side of the substrate to the other. This is quite different than the arrangement shown in Fig. 6B of Masukawa where the bonding wires 5' merely pass over the slit without ever passing through it. Therefore, reconsideration and allowance of amended independent claims 26, 39, 52, 66 and 80 and their dependent claims over Masukawa is respectfully requested.

Reconsideration and allowance of claims 26-29, 34-36, 42, 48-56, 61-69, 75-82 and 86-90 over Hinrichsmeyer is also respectfully requested. In the Office Action, reference is made to Fig. 5 of Hinrichsmeyer, noting the existence of a slit 13 in a substrate 10 with a pellet 19 having bonding pads 21 positioned to have the slit 13 located over them. Wires such as 22 are also provided for connecting to the bonding pads 21, as noted in the Office Action. However, Hinrichsmeyer fails to teach or suggest the claimed arrangement of bump electrodes disposed on the second surface of the substrate and electrically connected to the electrode pads of the substrate. As such, Hinrichsmeyer fails to teach or suggest the claimed structure of the invention.

In the Office Action, reference is made to the solder pads 25 as being the claimed bump electrodes. These solder pads 25 are not formed in the claimed matrix arrangement defined in the present claims, and are not used for the same purpose of connection to the specific first and second electrode pads as defined in claim 26. On the contrary, these solder pads 25 are simply part of a connection using the leads 24 for mounting on a substrate PCB. Accordingly, it is respectfully submitted that the structure and operating of Hinrichsmeyer is completely different than that defined by independent claim 26 and its dependent claims, and reconsideration and allowance over Hinrichsmeyer is also respectfully requested.

Reconsideration and allowance of dependent claims 30, 43, 56, 70 and 83 over the combination of Hinrichsmeyer and linuma is also respectfully requested. With regard to this, although linuma may be of general interest concerning the material used for bump electrodes, it completely fails to suggest anything for overcoming the shortcomings of either Masukawa or Hinrichsmeyer in meeting the terms of the parent claims. Therefore, it is respectfully submitted that claims 30, 43, 56, 70 and 83, like the other claims in this application, clearly defines over this combination of reference and reconsideration and allowance of claim 31 is earnestly solicited.


If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135

(Dock t No. 501.34189R00), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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501.34189R00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: A. NAKAMURA, et al.
Application No.: 09/613,541
Filed: July 7, 2000
For: SEMICONDUCTOR DEVICE HAVING AN IMPROVED
CONNECTION ARRANGEMENT BETWEEN A
SEMICONDUCTOR PELLET AND BASE SUBSTRATE
ELECTRODES (As Amended)
Art Unit: 2826
Examiner: A. Williams

STATUS OF CLAIMS AND SUPPORT FOR CLAIM CHANGES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

October 23, 2003

Sir:

Pursuant to the requirement of 37 CFR § 1.173(c), the following sets forth the status of the claims of U.S. Patent 5,777,391 in the above-identified reissue application. Specifically, patent claims 1-25 have been allowed in this reissue application Serial No. 09/613,541. New claims 26-90 are now presented by the present reissue application.

Support for the language of new claims 26-90 are supported by each of the illustrations of the four described embodiments shown, for example, in Figs. 4 and 13-15 (noting, of course, that this reference to the figures is solely for the purposes of illustration, and not intended to limit the claims only to the features of these figures). In particular, each of these figures shows a semiconductor pellet (2) mounted on a substrate (1) having a slit (5) such that the bonding pads (2A) of the pellet are arranged in the slit in a plane view, with electrode pads (1A) arranged at

both sides of the slit, bonding wires (6) connecting the electrode pads with the bonding pads and bump electrodes (4) forming a matrix on both sides of the slit.

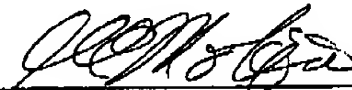
By the present amendment, independent claims 26, 39, 52, 56 and 80 have been amended to clarify the extension of the bonding wire from the first surface to the second surface of the substrate. This is clearly shown in various cross-sectional drawings of the patent, including Figs. 2 and 3 which show the bonding wire 6 extending from the first surface to the second surface of the substrate 1.

If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 501.34189R00), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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